GUI

Remote ssh based GUI

```
export DISPLAY=:0.0
```

Remote browser based GUI

simple HTML gui

color codes (see https://www.rapidtables.com/web/color/html-color-codes.html:

- green: rgb(127,255,0)
- yellow: rgb(255,255,0)
- cyan: rgb(0,255,255)
- skyblue: rgb(135,206,235)
- blue: rgb(0,0,255)
- violet: rgb(238,130,238)
- white: rgb(255,255,255)
- lightgray: rgb(211,211,211)
- black: rgb(0,0,0)
- red: rgb(255,0,0)

plotly based HTML gui

Idea: creating images on pi and display these images as html files remotely

Use lighttpd as minimal webserver on pi

```
sudo apt-get install lighttpd
sudo pip install plotly
```

Check status

```
sudo systemctl status lighttpd
```

Set access rights

```
sudo groupadd www-data
sudo usermod -G www-data -a pi
sudo chown -R www-data:www-data /var/www/html
sudo chmod -R 775 /var/www/html
```

restart service

```
sudo service lighttpd force-reload
```

move html file to be displayed into /var/www/html/

remote browser access html file by:

```
http://192.168.1.xx/<filename>
```

PHP installieren

```
sudo apt-get install php7.3-cgi php7.3
sudo lighty-enable-mod fastcgi-php
sudo service lighttpd force-reload
```

php- files in /var/www/html ablegen

Basic code

```
import plotly.graph_objects as go
import random

def nextvalue():
    return (random.randint(10,104))

def displayserver():
    while True:
        fig = go.Figure(go.Indicator(
            mode = "gauge+number",
            value = nextvalue(),
            domain = {'x': [0, 1], 'y': [0, 1]},
            title = {'text': "Temperatur"}))

        fig.write_html('/var/www/html/labor.html', auto_open=True)
#fig.show()

#
# Main
#
if __name__== '__main__':
    try:
        displayserver()
    except KeyboardInterrupt:
        exit()
```

shell script lesen DB

getlatestvalue.sh

```
sqlite3 /home/pi/sensor/sensor.db <<END_SQL
.timeout 2000
select ' ',* from latestvalueLabor_A;
END_SQL
```

hand over values to thermometer.py

```
python3 thermometer.py `getlatestvalue.sh`
```

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